ABSTRACT OF THE DISCLOSURE

An over-current protection apparatus with high voltage endurance comprises a first electrode layer, a second electrode layer and a ceramic current-sensitive layer, where both the first and second electrode layers are continuous and uniform to enhance electrical and thermal conductivities thereof. The ceramic current-sensitive layer is sandwiched between the first and second electrode layers, and is essentially composed of basic matrix, dopants, conductors and sintering material. The resistance of the over-current protection apparatus with high voltage endurance is less than 10 ohms before being tripped, and the resistance-jumping ratio is less than 1.3.